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ABSTRACT

A study of 74 elementary classrooms in Chicago was undertaken to see how the management and organization of instruction impinge on student involvement during reading instruction. The objectives were to determine whether student attention was higher when the teacher directed instruction to the entire room than when the teacher directed instruction to a group of students within the room, if there was a difference in student attention when there was one instructional group or more than one in a classroom, and the relationship between student involvement and various school level characteristics, including scores on standardized reading tests and the percent of students from poverty-level families. It was found that the average percent of students not involved in instruction was much greater in classrooms where the teacher was oriented to a group, that involvement was lower in classrooms when there were two or more groups than when there was only one, that student involvement is significantly related to reading achievement, and that poverty is correlated to the percent of students not involved in instruction. (TJ)

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Relationship Among Student Time on Task, Orientation of Teachers, and Instructional Grouping in Elementary Reading Classes

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Currently, there is widespread interest in the study of the relationship between student involvement and student achievement. Much of the mastery learning research (Bloom, 1976) has measured student use of time in the classroom. Both overt and covert attention have been measured and related to achievement. Time on task and achievement have a correlation of about .60. Researchers are now studying ways which teachers are able to attain the greatest amount of student on task behavior. Much of this research has focused on basic skills for primary students (Rosenshine and Berliner, 1978). This present research was designed to see how the management and organization of instruction impinges on student involvement during reading instruction in the primary grades.

The first objective of this research was to determine whether student attention is higher when the teacher directs instruction to the entire room than when the teacher directs instruction to a group of students within the room. Pilot data suggested that instruction to an entire class of equally skilled students resulted in a high degree of student involvement. The second objective of the research was to discover if there is a difference in student attention when there is one instructional group or more than one instructional group in a classroom. The third objective of the research was to investigate the relationship between student involvement and various school level characteristics, including scores on standardized reading tests, and the percent of students in the school from poverty level families.

The data

The data was collected in 39 Chicago public elementary schools. The schools were chosen in a systematic, non-random fashion, but they are representative of the population of Chicago schools in regard to size, poverty, and other significant variables. Two classrooms, one with primary age students (ages 6, 7, and 8), and one with intermediate age students (ages 9, 10, and 11), were observed in thirty-five of the schools. Only one classroom was observed in the other four schools. Seventy-four classrooms were observed. The classrooms were chosen randomly in the schools. The day of observation was also chosen randomly. The observers saw all scheduled reading instruction in the selected classrooms on the day of observation.

Trained observers used a highly reliable observation schedule (Easton, et al., 1978) during reading instruction periods in the elementary classrooms. While the observers were in the classrooms they coded and classified student and teacher behaviors. The primary objectives of the observations were to obtain accurate measures of student involvement or attention, to ascertain teacher orientation (to the entire class, to a group, or to an individual), and to count the number of instructional groups. Other activities were also coded. The variables reported in this study were rated by the observers every five minutes. Every student was looked at, one at a time, for about four seconds, and a decision was made whether the child was attending to the assigned task or not. The previous reliability study showed that observers were able to agree on 75% of their judgments about the number of students not involved in instruction (Easton, et al., 1978). The number of students not involved in the instruction and the number of students in the classroom were recorded every five minutes. The number that was used in the analysis of the data was the mean number of students seen every five minutes to be not

involved in the instruction during the time that the observer was in the classroom. The number of instructional groups was the number of different legitimate instructional activities, with unique tasks, that occured at one time. This was also counted every five minutes.

Other data about these schools and classrooms was obtained from central sources where citywide information about school poverty and achievement was available.

Results

Teacher Orientation

In 16 of the 74 classrooms in this study the teachers were observed to be oriented to the entire class at all times during the reading period. There were nine classrooms where the teacher was oriented to a group at all times during the reading period. There were 56 classes where in at least one five-minute observation interval the teacher was oriented to the class, and there were 50 classrooms where the teacher was at some time oriented to a group. The overlap between the 56 rooms with some teacher orientation to class and the 50 rooms with some teacher orientation to a group is 32 classrooms. In these 32 rooms the teacher was oriented to the class and was also, at other times in the same reading period, oriented to a group.

There was an average of about 2.4 students not involved in instruction in the 16 classrooms where the teacher was always oriented to the class, and an average of about 3.4 students not involved in instruction in the classrooms where theteacher was always oriented to a group. Although the average class size of the classrooms where the teacher was always oriented to the group was slighter higher than the average size in the classrooms where the teacher was always oriented to the class (about 25.0 and 23.9 respectively) the average percent of students not involved in instruction was much greater in the classrooms where the teacher was oriented to group. About 15.4% of the

students in the nine rooms where the teacher was always oriented to a group were not involved in the instruction, whereas about 9.7% of the students were not involved in the instruction in 16 classrooms where the teacher was oriented to the class.

Student involvement has the same relationship to teacher orientation in the 32 classrooms where the teachers were sometimes oriented to the class and at other times were oriented to a group. The average number of students in these rooms was slightly higher when the teachers were oriented to a group than when they were oriented to the class. There were about 25.4 students in the rooms when the teacher worked with a group, and about 25.0 students in the rooms when the teacher was oriented to the entire class. There was an average of about 3.9 students not involved when the teacher was oriented to a group, and about 2.3 students not involved when the teacher was oriented to the class. The mean percent of student not involved was about 15.4% when the teachers were oriented to a group, and 9.7% when the teachers were oriented to the class. Although there was a stable relationship (r=.99) between the number of students in the room when the teacher was oriented to the class and when the teacher was oriented to a group, student involvement was not stable between one teacher orientation and the other. The correlation between number of students not involved when the teacher was oriented to the class and number of students not involved when the teacher was oriented to a group was .094, and the correlation of percent students not involved under these two conditions was .229. This indicates that there is little relationship between the percent of students paying attention during class instruction and the percent of students paying attention during group instruction in the same room.

Table I presents the statistics about number of students in the room, number of students not involved, and percent of students not involved for 32 classes where the teachers shifted their orientation from class to group during the reading period, the 16 classes where teacher orientation was always to the class and the 9 classes where teacher orientation was always to the group. The statistics for the 56 rooms where the teacher was sometimes oriented to the class, and the 50 rooms where the teacher was sometimes oriented to the group are also shown in Table I. When the teacher was oriented to a group there were more students in the room (about 25.5), more students not involved (about 3.7), and a higher percent of students not involved (about 15%) than when the teacher was oriented to the class (where there was about 24.4 students in the room, 2.3 students not involved, and 9.9% not involved).

Regardless of whether the differences in teacher orientation are seen in the same classroom (that is when the same teachers are compared to themselves) or in different classrooms (when one group of teachers is compared to another) the same results are found. At the times and in the rooms when the teacher was oriented to a group there are somewhat more students in the room, somewhat more students who were not involved in instruction, and, also, a higher percent of students not involved in instruction.

Number of Instructional Groups

Although teacher orientation to a group or to the class is highly correlated to the number of instructional groups in a room (-.677 for teacher orientation to class and mean number of instructional groups, and .707 for teacher orientation to group and mean number of instructional group), the variables are not identical. The teacher may be oriented to the entire

class, yet students may be grouped to work on different materials. Or the students may be functioning as a single group and the teacher may be oriented to an individual.

There were 18 classrooms where there was one group only for the entire reading period and there were 20 rooms where there were two or more instructional groups for the duration of the reading period. In 35 rooms there was sometimes only one group and at other times two or more groups. At sometime during the reading period there was one group in 54 rooms, and at sometime during the reading period there were two or more groups in 35 rooms.

The mean number of students in the room in the 18 rooms where there was always one group was 23.3 and there were about 26.0 students in the 20 rooms that always had two or more groups. The mean number of students not involved was 2.4 for one group rooms and 3.4 for two group rooms. About 10.5% of the students in the one group rooms were not involved, and about 13.9% of the students in the two group rooms were not involved. These and other statistics are in Table II.

When the 35 rooms that had both one and two or more groups were organized with one group there were slightly fewer students in the room (24.8 vs. 24.9), fewer students not involved (2.5 vs. 3.8), and a smaller percent of students not involved (10.5% vs. 15.3%), than when these rooms were organized with two or more groups. The mean number of students in the room was stable from one way of organizing to the other (r=.86). The mean number and percent of students not involved differs from having one instructional groups to having two or more instructional groups. The correlation between the different instructional patterns is .22 for mean number of students not involved, and .30 for mean percent not involved. There is little relationship within rooms between the mean number and percent of students not involved in instruction

when there was one group in the room and when there were two or more groups in the room.

There were more students in the 55 rooms that at sometime had two or more groups (25.3 vs. 24.3), more students not involved (3.7 vs. 2.5), and a greater percent of students not involved (14.8% vs. 10.4%) than in the 54 rooms where there was sometime one instructional group.

Student involvement was uniformly lower in classrooms when there were two or more instructional groups, than when there was only one instructional group. This was true at different times in the same classrooms, and also true in different classrooms.

Relationship of Student Involvement and School Characteristics

Student involvement in instruction is significantly related to reading achievement as measured by the comprehension scale of the Iowa Test of Basic Skills (ITBS). Correlation coefficients are presented on Table III. The median reading comprehension score of all the 8 year old students in the 74 schools is negatively correlated to the percent of students not involved in the observed rooms (r=-.246). Similarly the reading comprehension of all 10 year olds in the school is negatively correlated to percent not involved in the observed rooms (r=-.258). There is a stronger relationship between the mean reading comprehension scores of the classrooms that were observed and their percent of students not involved (-.441).

The mean number of students in the room during the observations of reading instruction is not related to reading achievement, but the percent of the students in the room who are assigned to receive reading instruction during the reading period is related to student reading achievement. There is a slight positive correlation between percent students reading and the 8 and 10 years reading comprehension (r=.211, and r=.142), and a somewhat stronger

(r=.292) relationship between percent students reading and the mean reading comprehension score for that room. Poverty, measured here by the percent of students in the school from families below federally defined poverty levels, is positively correlated to the percent of students not involved in instruction (r=.322). The poverty level is strongly related to achievement, with correlations of -.626 to 8 year old median reading comprehension, -.638 to 10 year old median reading comprehension, and -.367 to the mean reading comprehension in the room observed. The partial correlation coefficient between percent of students not involved in instruction and mean reading score for the observed room with the poverty level of the school controlled is -.365.

Discussion

Student involvement is highly related to student achievement. Student involvement was higher when teachers were oriented to the entire class than when they were oriented to a group of students, and student involvement was higher when there was one instructional group and activity than when there were two or more instructional groups or activities. The implications are not that teachers should always be oriented to the entire class or should have only one instructional activity at a time, but that teachers should be more aware of all students and not regard any activity as having secondary importance. The findings of higher attention when the teacher was oriented to the class and when there was one instructional group were validated by looking at different sets of classrooms in the sample.

Table 1

Mean Number of Students in Room, Mean Number Students Not involved, and Percent Students Not Involved for Teacher Oriented to Class and Teacher Oriented to Group

A. Classrooms where teacher shifted orientation between class and group (N=32)

	Teacher Orientation To Class		Teacher Orientation To Group		Correlation Between Means	t-value	df	p
	$\bar{X}$	SD	$\bar{X}$	SD				
Students in Room	24.986	3.718	25.404	3.862	.994	-1.86	31	.073
Students not Involved	2.287	2.365	3.853	2.644	.094	-2.62	31	.013
Percent Students not Involved	9.688	10.721	15.406	11.001	.229	-2.40	31	.023

B. Classrooms where teacher was always oriented to class (N=16) and classrooms where teacher was always oriented to group (N=9)

	Teacher Orientation To Class		Teacher Orientation To Group		t-value	df	p
	$\bar{X}$	SD	$\bar{X}$	SD			
Students in Room	23.946	3.835	24.965	5.15	- .56	23	.578
Students not Involved	2.367	1.578	3.393	1.73	-1.51	23	.145
Percent Students not Involved	9.708	6.191	15.109	10.575	-1.62	23	.119

C. Classrooms where teacher was sometimes oriented to class (N=56) and classrooms where teacher was sometimes oriented to group (N=50)

	Teacher Orientation To Class		Teacher Orientation To Group		
	$\bar{X}$	SD	$\bar{X}$	SD	
Students in Room	24.416	4.252	25.480	4.068	No statistical test
Students not Involved	2.320	2.042	3.724	2.375	
Percent Students not Involved	9.893	9.232	15.000	10.242	

Table 2

Mean Number of Students in Room, Mean Number Students Not Involved, and Percent Students Not Involved for One Instructional Group and for Two or More Instructional Groups

A. Classrooms where number of groups shifted between one and two or more (N=35)

	One Group		Two or More Groups		Correlation Between Means	t-value	df	p
	$\bar{X}$	SD	$\bar{X}$	SD				
Students in Room	24.755	4.346	24.922	4.12	.858	- .43	34	.667
Students not Involved	2.551	2.740	3.820	2.481	.221	-2.30	34	.028
Percent Students not Involved	10.514	11.498	15.314	10.186	.295	-2.20	34	.035

B. Classrooms where there was always one group (N=18) and classrooms where there were always two or more groups (N=20)

	One Group		Two or More Groups		t-value	df	p
	$\bar{X}$	SD	$\bar{X}$	SD			
Students in Room	23.299	4.743	25.056	4.208	-1.83	36	.076
Students not Involved	2.364	1.496	3.400	1.893	-1.86	36	.071
Percent Students not Involved	10.496	7.109	13.899	9.198	-1.27	36	.214

C. Classrooms where there was sometimes one group (N=54) and classrooms where there were sometimes two or more groups (N=55)

	One Group		Two or More Groups		
	$\bar{X}$	SD	$\bar{X}$	SD	
Students in Room	24.256	4.450	25.298	4.144	No statistical test
Students not Involved	2.453	2.368	3.667	2.275	
Percent Students not Involved	10.352	10.124	14.782	9.739	

Table 3

Correlations Among School Characteristics and Observed Variables

School and Room Characteristics

	Reading Comprehension Median - All 8 Year Olds In School	Reading Comprehension Median - All 10 Year Olds In School	Mean - In Observed Classroom	School Poverty Index
Mean Number Students in Room	.082	.117	.061	-.129
Percent Students Reading	.211*	.142	.292*	-.103
Percent Students Not Involved	-.246*	-.258*	-.441**	.322**

*$p < .05$
**$p < .01$

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